

What is claimed is:

[Claim 1] 1. An apparatus comprising:

a press unloader, wherein the press unloader comprises:

a base;

a shaft in rotatable connection with the base;

at least one arm extending from the shaft in a radial direction, wherein the at least one arm includes an upper portion and a lower portion, wherein the lower portion of the at least one arm includes a first end and a second end, wherein the first end of the lower portion of the at least one arm is in operative connection with the shaft and is operative to rotate responsive to rotation of the shaft, wherein the second end of the lower portion of the at least one arm is in pivoting connection with the upper portion of the at least one arm at a first location on the upper portion of the at least one arm;

at least one guide member, wherein the guide member includes a first end and a second end, wherein the first end of the guide member is operative to pivot about a pivot point positioned adjacent the base, wherein the pivot point is spaced apart from the shaft, wherein the second end of the guide member is in pivoting connection with the upper portion of the at least one arm at a second location on the upper portion of the at least one arm, wherein the first location on the upper portion of the at least one arm is spaced apart from the second location on the upper portion of the at least one arm;

a drive linkage, wherein the drive linkage includes at least two portions in pivoting connection with each other, wherein a first one

of the at least two portions of the drive linkage is in operative connection with the shaft, wherein the second one of the at least two portions of the drive linkage is adapted to be connected to an upper portion of a press, wherein as the upper portion of the press moves through a plurality of up and down cycles, the drive linkage is operative to cause the shaft to rotate, whereby the rotation of the shaft causes the at least one arm to reciprocate between an internal position relative dies of the press and an external position relative the dies of the press.

[Claim 2] 2. The apparatus according to claim 1, further comprising:

the press, wherein the press includes a lower portion and the upper portion, wherein the press includes a first die in operative connection with the lower portion and a second die in operative connection with the upper portion, wherein movement of the upper portion of the press through a plurality of up and down cycles with respect to the lower portion of the press is operative to cause the at least one arm to reciprocate between the internal and the external positions, wherein at the internal position, at least one portion of the upper portion of the at least one arm is located between the first die and the second die, wherein at the external position, the at least one portion of the upper portion of the at least one arm is not located between the first die and the second die.

[Claim 3] 3. The apparatus according to claim 2, wherein the first one of the at least two portions of the drive linkage is in operative connection with the shaft at a first location on the shaft, wherein the lower portion of the at least one arm is in operative connection with the shaft at a second location on the shaft, wherein the first location on the shaft is spaced apart from the second location on the shaft along a longitudinal axis of the shaft.

[Claim 4] 4. The apparatus according to claim 2, wherein the distance between the first location on the upper portion of the at least one arm and the second location on the upper portion of the at least one arm is greater than a length of a line that extends radially from a rotational axis of the shaft to the pivot point adjacent the base about which the at least one guide member pivots.

[Claim 5] 5. The apparatus according to claim 2, wherein when the upper portion of the press is at a maximum height for each cycle, the at least one arm is at the internal position, wherein when the upper portion of the press is at a minimum height for each cycle, the at least one arm is at the external position, wherein the at least one portion of the upper portion of the at least one arm moves through a path between the internal position and the external position of the at least one arm, wherein the at least one portion of the upper portion of the at least one arm is at a lowest vertical position of the path at the external position of the at least one arm.

[Claim 6] 6. The apparatus according to claim 5, wherein a slope of the upper portion of the at least one arm at the external position is greater than the slope of the of the upper portion of the at least one arm at the internal position, wherein an angle between the upper portion and lower portion of the at least one arm is relatively wider at the internal position of the at least one arm and is relatively narrower at the external position of the at least one arm.

[Claim 7] 7. The apparatus according to claim 2, wherein the second one of the at least two portions of the drive linkage is in pivoting connection with the upper portion of the press.

[Claim 8] 8. The apparatus according to claim 1, further comprising at least two parallel arms in operative connection with the shaft.

[Claim 9] 9. The apparatus according to claim 1, further comprising at least one finger in operative connection with the upper portion of the at least one arm.

[Claim 10] 10. The apparatus according to claim 1, further comprising at least one tray in operative connection with the upper portion of the at least one arm.

[Claim 11] 11. An apparatus comprising:

a press, wherein the press comprises a lower portion and an upper portion, wherein the press includes a first die in operative connection with the lower portion and a second die in operative connection with the upper portion, wherein the upper portion of the press is operative to move through a plurality of up and down cycles with respect to the lower portion of the press and stamp parts between the first and second dies;

an unloader, wherein the unloader comprises:

a shaft in rotatable connection the lower portion of the press;

at least one arm extending from the shaft in a radial direction, wherein the at least one arm includes an upper portion and a lower portion, wherein the lower portion of the at least one arm includes a first end and a second end, wherein the first end of the lower portion of the at least one arm is in operative connection with the shaft and is operative to rotate responsive to rotation of the shaft, wherein the second end of the lower portion of the at least one arm is in pivoting connection with the upper portion of the at least one arm at a first location on the upper portion of the at least one arm;

at least one guide member, wherein the guide member includes a first end and a second end, wherein the first end of the guide member is in pivoting connection with a pivot point, wherein the pivot point is adjacent the lower portion of the press, wherein the pivot point is spaced apart from the shaft, wherein the second end of the guide member is in pivoting connection with the upper portion of the at least one arm at a second location on the upper portion of the at least one arm, wherein the first location on the upper portion of the at least one arm is spaced apart from the second location on the upper portion of the at least one arm;

a drive linkage, wherein the drive linkage includes at least two portions in pivoting connection with each other, wherein a first one of the at least two portions is in operative connection with the shaft, wherein the second one of the at least two portions is in operative connection with the upper portion of the press, wherein movement of the upper portion of the press is operative to cause the at least one arm to reciprocate between an internal position and an external position, wherein at the internal position, at least one portion of the upper portion of the at least one arm is located between the first die and the second die, wherein at the external position, the at least one portion of the upper portion of the at least one arm is not located between the first die and the second die.

[Claim 12] 12. The apparatus according to claim 11, wherein the first one of the at least two portions of the drive linkage is in operative connection with the shaft at a first location on the shaft, wherein the lower portion of the at least one arm is in operative connection with the shaft at a second location on the shaft, wherein the first location on the shaft is spaced apart from the second location on the shaft along a longitudinal axis of the shaft.

[Claim 13] 13. The apparatus according to claim 11, wherein the distance between the first location on the upper portion of the at least one arm and the second location on the upper portion of the at least one arm is greater than a length of a line that extends radially from a rotational axis of the shaft to the pivot point adjacent the lower portion of the press about which the at least one guide member pivots.

[Claim 14] 14. The apparatus according to claim 11, wherein when the upper portion of the press is at a maximum height for each cycle, the at least one arm is at the internal position, wherein when the upper portion of the press is at a minimum height for each cycle, the at least one arm is at the external position, wherein the at least one portion of the upper portion of the at least one arm moves through a path between the internal position and the external position of the at least one arm, wherein the at least one portion of the upper portion of the at least one arm is at a lowest vertical position of the path at the external position of the at least one arm.

[Claim 15] 15. The apparatus according to claim 11, wherein a slope of the upper portion of the at least one arm at the external position is greater than the slope of the of the upper portion of the at least one arm at the internal position, wherein an angle between the upper portion and lower portion of the at least one arm is relatively wider at the internal position of the at least one arm and is relatively narrower at the external position of the at least one arm.

[Claim 16] 16. A method comprising:

- a) placing a base of an unloader adjacent a lower portion of a press, wherein the lower portion of the press includes a first die;

- b) placing a drive linkage of the unloader in operative connection with an upper portion of a press, wherein the upper portion of the press includes a second die;
- c) reciprocating the upper portion of the press through a plurality of up and down cycles with respect the lower portion of the press;
- d) driving a shaft of the unloader to rotate with the drive linkage through a plurality of clockwise and counterclockwise motions responsive to the reciprocation of the upper portion of the press in (c);
- e) reciprocating at least one arm in operative connection with the shaft between an internal position and an external position responsive to the rotation of the shaft in (c), wherein the at least one arm includes a lower portion in pivoting connection with an upper portion of the at least one arm at a first location on the upper portion of the at least one arm, wherein the lower portion of the at least one arm is in operative connection with the shaft and is operative to rotate responsive to rotation of the shaft, wherein in the internal position at least one portion of the upper portion of the at least one arm is located between the first and second dies, wherein in the external position the at least one portion of the upper portion of the at least one arm is not located between the first and second dies;
- f) causing with at least one guide member of the unloader, the angle between the upper portion and lower portion of the at least one arm to become relatively wider at the internal position of the at least one arm and to become relatively narrower at the external position of the at least one arm, wherein the at least one guide member includes a first end in pivoting connection with the base at a pivot point adjacent the base, wherein the pivot point is spaced apart from the shaft, wherein the at least one guide member includes a second end in pivoting connection with the upper portion of the at least one arm at a second location on the

upper portion of the at least one arm, wherein the first location and the second location are spaced apart on the upper portion of the at least one arm.

[Claim 17] 17. The method according to claim 16, wherein in (d) the drive linkage is in operative connection with the shaft at a first location on the shaft, wherein in (e) the lower portion of the at least one arm is in operative connection with the shaft at a second location on the shaft, wherein the first location on the shaft is spaced apart from the second location on the shaft along a longitudinal axis of the shaft.

[Claim 18] 18. The method according to claim 16, wherein the distance between the first location on the upper portion of the at least one arm and the second location on the upper portion of the at least one arm is greater than a length of a line that extends radially from a rotational axis of the shaft to the pivot point adjacent the base about which the at least one guide member pivots.

[Claim 19] 19. The method according to claim 16, wherein in (e) when the upper portion of the press is at a maximum height for each cycle, the at least one arm is at the internal position, wherein when the upper portion of the press is at a minimum height for each cycle, the at least one arm is at the external position, wherein the at least one portion of the upper portion of the at least one arm moves through a path between the internal position and the external position of the at least one arm, wherein the at least one portion of the upper portion of the at least one arm is at a lowest vertical position of the path at the external position of the at least one arm.

[Claim 20] 20. The method according to claim 16, wherein in (e) a slope of the upper portion of the at least one arm at the external position is greater

than the slope of the of the upper portion of the at least one arm at the internal position.